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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/806,703	04/30/2001	Lucilla Steinaa	3631-0109P	5928

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BIRCH STEWART KOLASCH & BIRCH
PO BOX 747
FALLS CHURCH, VA 22040-0747

EXAMINER
DIBRINO, MARIANNE NMN

ART UNIT	PAPER NUMBER
1644	

DATE MAILED: 09/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/806,703	STEINAA ET AL.	
	Examiner	Art Unit	
	DiBrino Marianne	1644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *5/3/04 AND 5/14/04*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-67,69-84,86,87,89,90,92,93 and 95* is/are pending in the application.

4a) Of the above claim(s) *1-66 and 70-83* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *67,84,87,90 and 93* is/are rejected.

7)☐ Claim(s) *69,86,89,92 and 95* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *ATTACHED HERETO*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's amendments filed 5/3/04 and 5/14/04 are acknowledged and have been entered.

2. Upon consideration Applicant's supplemental amendment filed 5/14/04, the action of 8/9/04 has been vacated.

3. Applicant is reminded of Applicant's election with traverse in Applicant's amendment filed 4/30/03 of Group VI, and species of foreign T_H epitope SEQ ID NO: 12 introduced into SEQ ID NO: 3 in place of the amino acid residues at positions 250-264, and that upon consideration of the prior art, the search has been extended to include the species recited in claim 69 and SEQ ID NO: 14 recited in claims 93 and 95.

Claims 67, 69, 84, 86, 87, 89, 90, 92, 93 and 95 read on the elected species are currently being examined.

4. Applicant is required under 37 C.F.R. 1.821(d) to amend the specification to list the appropriate SEQ ID NOS for sequences disclosed in the specification, for example, page 119 at lines 26 and 28. Although Applicant has amended the specification to recite SEQ ID NO: 1 at the said locations, it is requested that Applicant amend the specification to recite the amino acid residues of SEQ ID NO: 1 that correspond to the sequences at the said locations, i.e., to make clear that SEQ ID NO: 1 is PSM and the sequences at lines 26 and 28 are amino acid residues 4-12 of SEQ ID NO: 1 and amino acid residues 711-719 of SEQ ID NO: 1, respectively.

5. The amendment filed 5/14/04 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: the incorporation by reference to the provisional application serial no 60/105,011.

6. For the purpose of prior art rejections, the filing date of the instant claim 69 is deemed to be the filing date of the PCT/DK 99/00525 parent application, i.e. 10/5/99, as the parent applications do not support the claimed limitations of the instant application. The limitation wherein the foreign TH epitope is introduced into a part of the Her2 amino acid sequence defined by SEQ ID NO: 3 at the positions recited is not disclosed in the said parent applications.

The following new rejections are necessitated by Applicant's amendment filed 5/14/04.

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 67, 68, 84, 87 and 90 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 2002/0090379A1 in view of Fendly et al (Vaccine Research 2/3, pages 129-139, 1993), references previously provided.

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2).

2002/0090379A1 teaches analogues of self proteins that are made immunogenic by inserting foreign T_H cell epitopes, including from tetanus, that are universally recognized, i.e., "promiscuous" recited in instant claims 84 and 85, and that such analogues may be used to treat cancer (especially claim 1, abstract, page 2 at [0015] and column 2 at lines 12-15 of 2002/0090379A1).

2002/0090379A1 does not teach the said analogues wherein the self protein is human Her2.

Fendly et al teach the human Her2/neu protooncogene is amplified and overexpressed in a variety of human adenocarcinomas and a treatment approach is to direct the patients own immune system toward those tumor cells that overexpress Her2. Fendly et al further teach that the extracellular domain (ECD) of Her2 was weakly immunogenic or non-immunogenic when administered in vivo, but could stimulate both humoral and cellular immune responses when administered with Detox adjuvant and could growth inhibit a breast cell tumor line that overexpressed Her2. Fendly et al teach that it is not known if immunogenicity of Her2-ECD is weaker in humans than in rhesus monkeys, but it is conceivable that Her2-ECD given with a potent adjuvant, perhaps combined with other strategies aimed at immunorestoration, can lead to effective immunization (especially page 137, last paragraph). Fendly et al teach that it is important that cancer antigens stimulate both the humoral and cellular compartments of the immune response. Fendly et al teach that initial phase of immunization even with adjuvant resulted in an immune response that was not antiproliferative, and that a rest period of several weeks was necessary before subsequent injection with immunogen and adjuvant.

It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to have made analogues of the Her2 protein taught by Fendly et al with inserted foreign T_H cell epitopes as taught for the self protein analogues of 2002/0090379A1 and to have administered it to humans using the Detox adjuvant of Fendly et al..

One of ordinary skill in the art at the time the invention was made would have been motivated to do this in order to treat human adenocarcinomas as taught by Fendly et al by directing the patient's own immune system toward those tumor cells that overexpress Her2.

The motivation to combine can arise from the expectation that the prior art elements will perform their expected functions to achieve their expected results when combined for their common known purpose. Section MPEP 2144.07.

Applicant's arguments in the amendment filed 5/14/04 have been fully considered but are not persuasive.

Applicant's position is of record in the said amendment on pages 21-23, and briefly, the crux of the argument is that the primary reference does not teach induction of CTL, but rather antibodies.

It is the Examiner's position that the instant claims are drawn to a product, that of a Her2 analogue that includes at least one immunodominant foreign Th epitope. The instant claims are not drawn to a method for inducing a CTL response. It is the Examiner's position that both references teach the treatment of cancer. It is the Examiner's further position that Th cells provide help not only for antibody production, but also for CTL precursor to CTL differentiation, i.e., a CTL response. Fendly et al teach that it is important that cancer antigens stimulate both the humoral and cellular compartments of the immune response. Fendly et al teach that initial phase of immunization even with adjuvant resulted in an immune response that was not antiproliferative, and that a rest period of several weeks was necessary before subsequent injection with immunogen and adjuvant. It is the Examiner's position that Fendly et al teach that a cellular immune response was also generated and that stimulation of both humoral and cellular arms of the immune response are important criteria in immune response to a cancer antigen, and so the teaching of preservation of CTL epitopes is taught by the prior art. It is the Examiner's position that immunorestoration is the restoration of an effective immune response.

9. Claim 93 is rejected under 35 U.S.C. 103(a) as being unpatentable over US 2002/0090379A1 in view of Fendly et al (Vaccine Research 2/3, pages 129-139, 1993) as applied to claims 67, 68, 84, 85, 87, 88 and 90 above, and further in view of A_Geneseq_101002 Accession Number AAR06310 or AAW11505 or EP 378881A or WO9640789A, and AAR11896 or EP427347A, references previously provided.

US 2002/0090379A1 and Fendly et al have been discussed supra, hereafter "the combined references".

The combined references do not teach wherein the natural T_H epitope has SEQ ID NO: 12 or SEQ ID NO: 14.

A_Geneseq_101002 Accession Number AAR06310 or AAW11505 or EP 378881A or WO9640789A teach a natural universal, i.e., promiscuous, T_H epitope from tetanus toxoid used to enhance immune response or to induce an immune response to a hapten, the said T_H epitope consisting of the sequence of SEQ ID NO: 12 of the instant application.

A_Geneseq_101002 Accession Number AAR11896 or EP427347A teach a natural universal, i.e., promiscuous, T_H epitope from tetanus toxoid used to enhance immune response or to induce an immune response to a hapten, the said T_H epitope consisting of the sequence of SEQ ID NO: 14 of the instant application.

It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to have made analogues of the Her2 protein taught by the combined references and using the universal T_H epitope consisting of the sequence of SEQ ID NO: 12 of the instant application taught by A_Geneseq_101002 Accession Number AAR06310 or

AAW11505 or EP 378881A or WO9640789A, or consisting of the sequence of SEQ ID NO: 14 of A_Geneseq_101002 Accession Number AAR11896 or EP427347A.

One of ordinary skill in the art at the time the invention was made would have been motivated to do this in order to treat human adenocarcinomas as taught by the combined references in a variety of persons with diverse HLA haplotypes by using a "universal" T_H epitope taught by by A_Geneseq_101002 Accession Number AAR06310 or AAW11505 or EP 378881A or WO9640789A.

The motivation to combine can arise from the expectation that the prior art elements will perform their expected functions to achieve their expected results when combined for their common known purpose. Section MPEP 2144.07.

Applicant's arguments in the amendment filed 5/14/04 have been fully considered but are not persuasive.

Applicant's position is of record in the said amendment on page 23, and briefly, the crux of the argument is that the primary reference does not teach induction of CTL, but rather antibodies.

It is the Examiner's position that the instant claims are drawn to a product, that of a Her2 analogue that includes at least one immunodominant foreign Th epitope. The instant claims are not drawn to a method for inducing a CTL response. It is the Examiner's position that the combined references teach the treatment of cancer. It is the Examiner's further position that Th cells provide help not only for antibody production, but also for CTL precursor to CTL differentiation, i.e., a CTL response. Fendly et al teach that it is important that cancer antigens stimulate both the humoral and cellular compartments of the immune response. Fendly et al teach that initial phase of immunization even with adjuvant resulted in an immune response that was not antiproliferative, and that a rest period of several weeks was necessary before subsequent injection with immunogen and adjuvant. It is the Examiner's position that Fendly et al teach that a cellular immune response was also generated and that stimulation of both humoral and cellular arms of the immune response are important criteria in immune response to a cancer antigen, and so the teaching of preservation of CTL epitopes is taught by the prior art. It is the Examiner's position that immunorestoration is the restoration of an effective immune response.

10. Claim 67 is rejected under 35 U.S.C. 103(a) as being unpatentable over WO 95/05849 (IDS reference) in view of Fendly et al (Vaccine Research 2/3, pages 129-139, 1993), references previously provided.

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the

inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2).

WO 95/05849 teaches analogues of self proteins that are made immunogenic by inserting foreign T_H cell epitopes, including from tetanus, and that such analogues may be used to treat cancer (especially page 3 at lines 20-21, page 5 at lines 10-25, the paragraph spanning pages 6 and 7 and claims 1, 2 and 5).

WO 95/05849 does not teach the said analogues wherein the self protein is human Her2.

Fendly et al teach the human Her2/neu protooncogene is amplified and overexpressed in a variety of human adenocarcinomas and a treatment approach is to direct the patients own immune system toward those tumor cells that overexpress Her2. Fendly et al further teach that the extracellular domain (ECD) of Her2 was weakly immunogenic or non-immunogenic when administered in vivo, but could stimulate both humoral and cellular immune responses when administered with Detox adjuvant and could growth inhibit a breast cell tumor line that overexpressed Her2. Fendly et al teach that it is not known if immunogenicity of Her2-ECD is weaker in humans than in rhesus monkeys, but it is conceivable that Her2-ECD given with a potent adjuvant, perhaps combined with other strategies aimed at immunorestoration, can lead to effective immunization (especially page 137, last paragraph). Fendly et al teach that it is important that cancer antigens stimulate both the humoral and cellular compartments of the immune response. Fendly et al teach that initial phase of immunization even with adjuvant resulted in an immune response that was not antiproliferative, and that a rest period of several weeks was necessary before subsequent injection with immunogen and adjuvant.

It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to have made analogues of the Her2 protein taught by Fendly et al with inserted foreign T_H cell epitopes as taught for the self protein analogues of WO 95/05849 and to have administered it with the adjuvant taught by Fendly et al.

One of ordinary skill in the art at the time the invention was made would have been motivated to do this in order to treat human adenocarcinomas as taught by Fendly et al by directing the patient's own immune system toward those tumor cells that overexpress Her2 as taught for the self proteins of WO 95/05849.

The motivation to combine can arise from the expectation that the prior art elements will perform their expected functions to achieve their expected results when combined for their common known purpose. Section MPEP 2144.07.
Applicant's arguments in the amendment filed 5/14/04 have been fully considered but are not persuasive.

Applicant's position is of record in the said amendment on pages 23-24, and briefly, the crux of the argument is that the primary reference does not teach induction of CTL, but rather antibodies.

It is the Examiner's position that the instant claims are drawn to a product, that of a Her2 analogue that includes at least one immunodominant foreign Th epitope. The instant claims are not drawn to a method for inducing a CTL response. It is the Examiner's position that both references teach the treatment of cancer. It is the Examiner's further position that Th cells provide help not only for antibody production, but also for CTL precursor to CTL differentiation, i.e., a CTL response. Fendly et al teach that it is important that cancer antigens stimulate both the humoral and cellular compartments of the immune response. Fendly et al teach that initial phase of immunization even with adjuvant resulted in an immune response that was not antiproliferative, and that a rest period of several weeks was necessary before subsequent injection with immunogen and adjuvant. It is the Examiner's position that Fendly et al teach that a cellular immune response was also generated and that stimulation of both humoral and cellular arms of the immune response are important criteria in immune response to a cancer antigen, and so the teaching of preservation of CTL epitopes is taught by the prior art. It is the Examiner's position that immunorestoration is the restoration of an effective immune response.

11. Claims 84, 90 and 93 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 95/05849 in view of Fendly et al (Vaccine Research 2/3, pages 129-139, 1993) as applied to claim 67 above, and further in view of A_Geneseq_101002 Accession Number AAR11896 or EP427347A and AAR06310 or AAW11505 or EP 378881A or WO9640789A, references previously provided.

WO 95/05849 and Fendly et al have been discussed supra, hereafter "the combined references".

The combined references do not teach wherein the natural T_H epitope is promiscuous and has SEQ ID NO: 12 or SEQ ID NO: 14.

A_Geneseq_101002 Accession Number AAR06310 or AAW11505 or EP 378881A or WO9640789A teach a natural universal, i.e., promiscuous, T_H epitope from tetanus toxoid used to enhance immune response or to induce an immune response to a hapten, the said T_H epitope consisting of the sequence of SEQ ID NO: 12 of the instant application.

A_Geneseq_101002 Accession Number AAR11896 or EP427347A teach a natural universal, i.e., promiscuous, T_H epitope from tetanus toxoid used to enhance immune response or to induce an immune response to a hapten, the said T_H epitope consisting of the sequence of SEQ ID NO: 14 of the instant application.

It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to have made analogues of the Her2 protein taught by the combined references and using the universal T_H epitope consisting of the sequence of SEQ ID NO: 12 of the instant application taught by A_Geneseq_101002 Accession Number AAR06310 or AAW11505 or EP 378881A or WO9640789A, or consisting of the sequence of SEQ ID NO: 14 of A_Geneseq_101002 Accession Number AAR11896 or EP427347A.

One of ordinary skill in the art at the time the invention was made would have been motivated to do this in order to treat human adenocarcinomas as taught by the combined references in a variety of persons with diverse HLA haplotypes by using a "universal" T_H epitope taught by by A_Geneseq_101002 Accession Number AAR06310 or AAW11505 or EP 378881A or WO9640789A.

The motivation to combine can arise from the expectation that the prior art elements will perform their expected functions to achieve their expected results when combined for their common known purpose. Section MPEP 2144.07.

Applicant's arguments in the amendment filed 5/14/04 have been fully considered but are not persuasive.

Applicant's position is of record in the said amendment on pages 24-25, and briefly, the crux of the argument is that the primary reference does not teach induction of CTL, but rather antibodies.

It is the Examiner's position that the instant claims are drawn to a product, that of a Her2 analogue that includes at least one immunodominant foreign Th epitope. The instant claims are not drawn to a method for inducing a CTL response. It is the Examiner's position that the combined references teach the treatment of cancer. It is the Examiner's further position that Th cells provide help not only for antibody production, but also for CTL precursor to CTL differentiation, i.e., a CTL response. Fendly et al teach that it is important that cancer antigens stimulate both the humoral and cellular compartments of the immune response. Fendly et al teach that initial phase of immunization even with adjuvant resulted in an immune response that was not antiproliferative, and that a rest period of several weeks was necessary before subsequent injection with immunogen and adjuvant. It is the Examiner's position that Fendly et al teach that a cellular immune response was also generated and that stimulation of both humoral and cellular arms of the immune response are important criteria in immune response to a cancer antigen, and so the teaching of preservation of CTL epitopes is taught by

the prior art. It is the Examiner's position that immunorestoration is the restoration immune response.

12. Claim 67 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dalum et al (J. Immunol. 157: 4796-4804, 1996) in view of Fendly et al (Vaccine Research 2/3, pages 129-139, 1993), references previously provided.

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Dalum et al teach breaking of B cell tolerance towards a self protein using a foreign T_H cell epitope inserted into the protein, i.e., using an analog of the self protein. Dalum et al further teach that the T cell response was to the inserted epitope as well as to a neoepitope formed by a combination of the inserted epitope and part of the neighboring self protein. Dalum et al teach treatment of diseases by induction of autoantibodies (T cell help for B cell autoantibody production).

Dalum et al do not teach wherein the self protein is human Her2.

Fendly et al teach the human Her2/neu protooncogene is amplified and overexpressed in a variety of human adenocarcinomas and a treatment approach is to direct the patients own immune system toward those tumor cells that overexpress Her2. Fendly et al further teach that the extracellular domain (ECD) of Her2 was weakly immunogenic or non-immunogenic when administered in vivo, but could stimulate both humoral and cellular immune responses when administered with Detox adjuvant and could growth inhibit a breast cell tumor line that overexpressed Her2. Fendly et al teach that it is important that cancer antigens stimulate both the humoral and cellular compartments of the immune response. Fendly et al teach that initial phase of immunization even with adjuvant resulted in an immune response that was not antiproliferative, and that a rest period of several weeks was necessary before subsequent injection with immunogen and adjuvant. Fendly et al teach that it is important that cancer

antigens stimulate both the humoral and cellular compartments of the immune response. Fendly et al teach that initial phase of immunization even with adjuvant resulted in an immune response that was not antiproliferative, and that a rest period of several weeks was necessary before subsequent injection with immunogen and adjuvant.

It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to have made analogues of the Her2 protein taught by Fendly et al with inserted foreign T_H cell epitopes as taught for the self protein analogues of Dalum et al.

One of ordinary skill in the art at the time the invention was made would have been motivated to do this in order to treat human adenocarcinomas as taught by Fendly et al by directing the patient's own immune system toward those tumor cells that overexpress Her2.

The motivation to combine can arise from the expectation that the prior art elements will perform their expected functions to achieve their expected results when combined for their common known purpose. Section MPEP 2144.07.

Applicant's arguments in the amendment filed 5/14/04 have been fully considered but are not persuasive.

Applicant's position is of record in the said amendment on pages 25-26, and briefly, the crux of the argument is that the references do not teach induction of CTL, but rather antibodies.

It is the Examiner's position that the instant claims are drawn to a product, that of a Her2 analogue that includes at least one immunodominant foreign Th epitope. The instant claims are not drawn to a method for inducing a CTL response. It is the Examiner's further position that Th cells provide help not only for antibody production, but also for CTL precursor to CTL differentiation, i.e., a CTL response. It is the Examiner's position that Fendly et al teach that a cellular immune response was also generated and that stimulation of both humoral and cellular arms of the immune response are important criteria in immune response to a cancer antigen, and so the teaching of preservation of CTL epitopes is taught by the prior art. It is the Examiner's position that immunorestoration is the restoration immune response.

13. Claims 84, 87, 90 and 93 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dalum et al (J. Immunol. 157: 4796-4804, 1996) in view of Fendly et al (Vaccine Research 2/3, pages 129-139, 1993) as applied to claims 67 and 68 above, and further in view of A_Geneseq_101002 Accession Number AAR11896 or EP427347A and AAR06310 or AAW11505 or EP 378881A or WO9640789A, references previously provided.

Dalum et al and Fendly et al have been discussed supra, hereafter "the combined references".

The combined references do not teach wherein the natural T_H epitope is promiscuous and has SEQ ID NO: 12 or SEQ ID NO: 14.

A_Geneseq_101002 Accession Number AAR06310 or AAW11505 or EP 378881A or WO9640789A teach a natural universal, i.e., promiscuous, TH epitope from tetanus toxoid used to enhance immune response or to induce an immune response to a hapten, the said TH epitope consisting of the sequence of SEQ ID NO: 12 of the instant application. A_Geneseq_101002 Accession Number AAR11896 or EP427347A teach a natural universal, i.e., promiscuous, TH epitope from tetanus toxoid used to enhance immune response or to induce an immune response to a hapten, the said TH epitope consisting of the sequence of SEQ ID NO: 14 of the instant application.

It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to have made analogues of the Her2 protein taught by the combined references and using the universal TH epitope consisting of the sequence of SEQ ID NO: 12 of the instant application taught by A_Geneseq_101002 Accession Number AAR06310 or AAW11505 or EP 378881A or WO9640789A, or consisting of the sequence of SEQ ID NO: 14 of A_Geneseq_101002 Accession Number AAR11896 or EP427347A.

One of ordinary skill in the art at the time the invention was made would have been motivated to do this in order to treat human adenocarcinomas as taught by the combined references in a variety of persons with diverse HLA haplotypes by using a "universal" TH epitope taught by by A_Geneseq_101002 Accession Number AAR06310 or AAW11505 or EP 378881A or WO9640789A.

The motivation to combine can arise from the expectation that the prior art elements will perform their expected functions to achieve their expected results when combined for their common known purpose. Section MPEP 2144.07.

Applicant's arguments in the amendment filed 5/14/04 have been fully considered but are not persuasive.

Applicant's position is of record in the said amendment on pages 26-27, and briefly, the crux of the argument is that the references do not teach induction of CTL, but rather antibodies.

It is the Examiner's position that the instant claims are drawn to a product, that of a Her2 analogue that includes at least one immunodominant foreign Th epitope. The instant claims are not drawn to a method for inducing a CTL response. It is the Examiner's further position that Th cells provide help not only for antibody production, but also for CTL precursor to CTL differentiation, i.e., a CTL response. It is the Examiner's position that Fendly et al teach that a cellular immune response was also generated and that stimulation of both humoral and cellular arms of the immune response are important criteria in immune response to a cancer antigen, and so the teaching of preservation of CTL epitopes is taught by the prior art. It is the Examiner's position that immunorestoration is the restoration immune response.

14. Claims 69, 86, 89, 92 and 95 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

15. No claim is allowed.

16. The reference crossed out in Applicant's IDS Form-1449 filed 1/20/04 has been cited by the Examiner in the previous Office Action.

17. The information disclosure statement filed 5/18/04 fails to comply with 37 CFR 1.98(a)(1), which requires a list of all patents, publications, or other information submitted for consideration by the Office. It has been placed in the application file, but the information referred to therein has not been considered. Specifically, no form 1449 has been received.

18. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

19. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Marianne DiBrino whose telephone number is 571-272-0842. The Examiner can normally be reached on Monday, Wednesday and Friday.

If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, Chan Y Christina, can be reached on 571-272-0841. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Marianne DiBrino, Ph.D.
Patent Examiner
Group 1640
Technology Center 1600
September 7, 2004

CHRISTINA CHAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600